

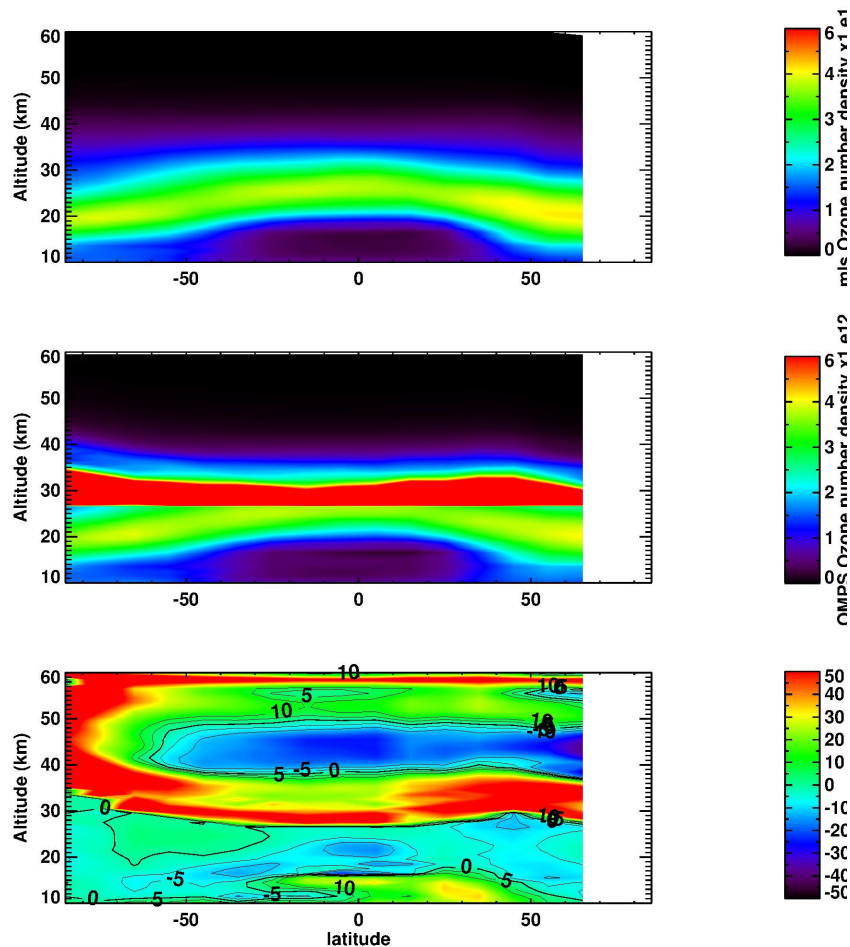
Evaluation of OMPS LP ozone version 2

Ghassan Taha

Outline

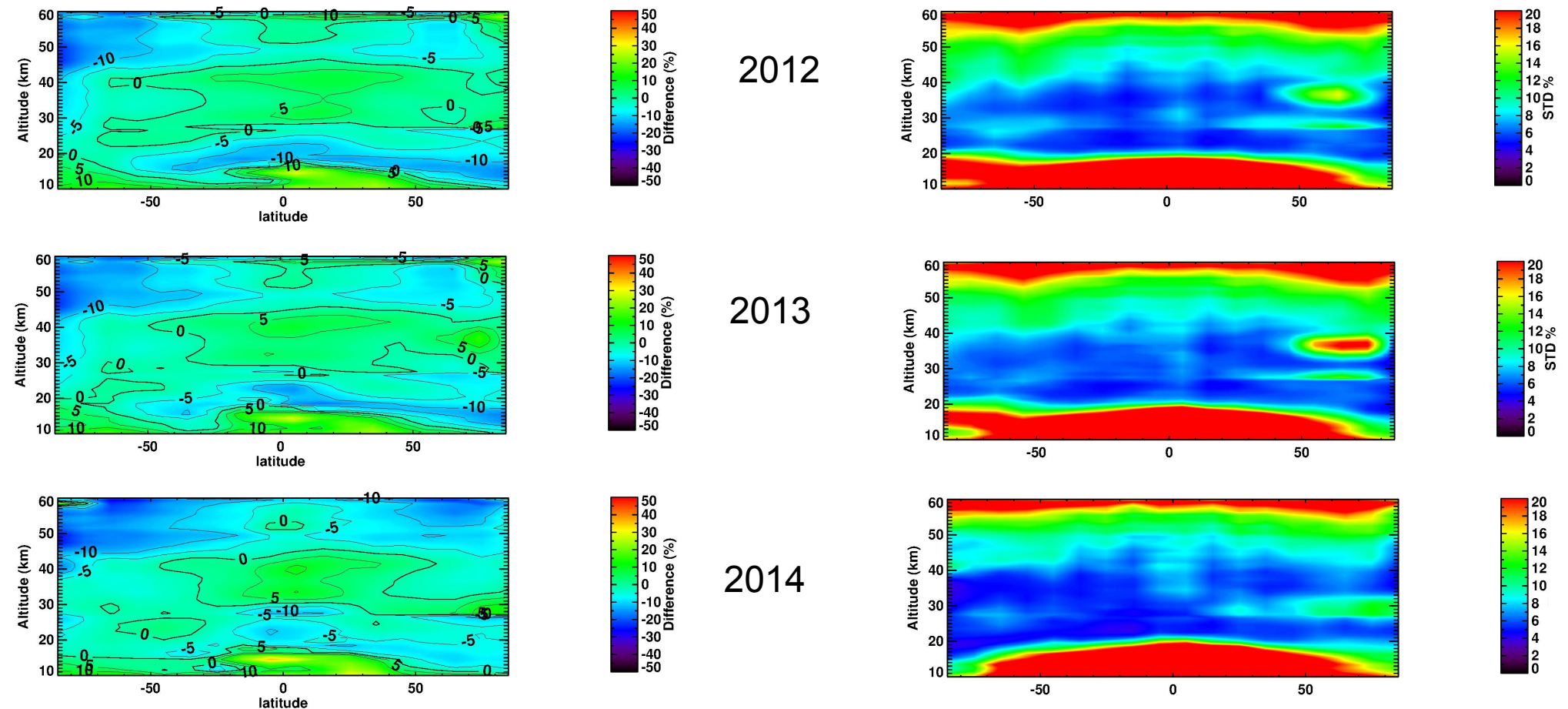
- Very early results, more details analysis later
- Comparison shown here for OMPS – MLS coincidence, 10° latitude zones, 3 slits. MLS converted to number density. OMPS combined profile.
 - Effect of ST change, Dec 2013
 - Summary plots for 2012/2013/2014
 - Estimate of tangent height offset
- Identifying problematic zones/altitudes

Dec 2013



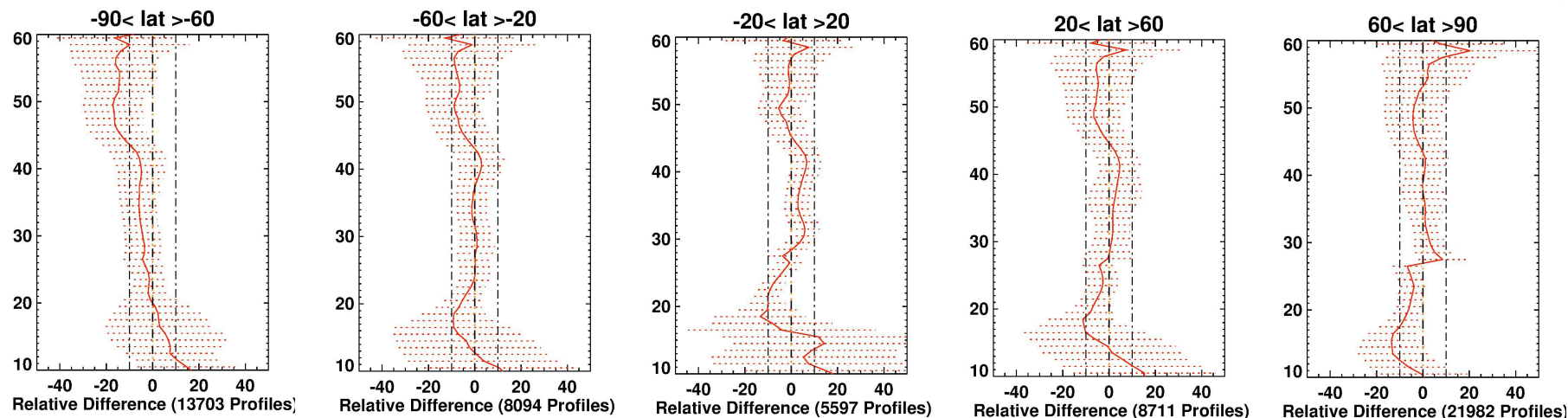
- Sample Table change 0.4 to 0.5 on Nov 26, 2013
 - Some UV pixels didn't extend low enough, some gaps
- Sample Table change 0.5 to 0.6 on Jan 23, 2014 fixed the retrieval
- Only UV retrieval is affected
 - o10789 to o11612
- Remedy:
 - Exclude measurements between 11/26/2013 and 1/23/2014
 - Use only Vis for combined before release
 - Ivv.in UV selection/altitude range needs tweaking.

Zonal mean difference and standard deviation

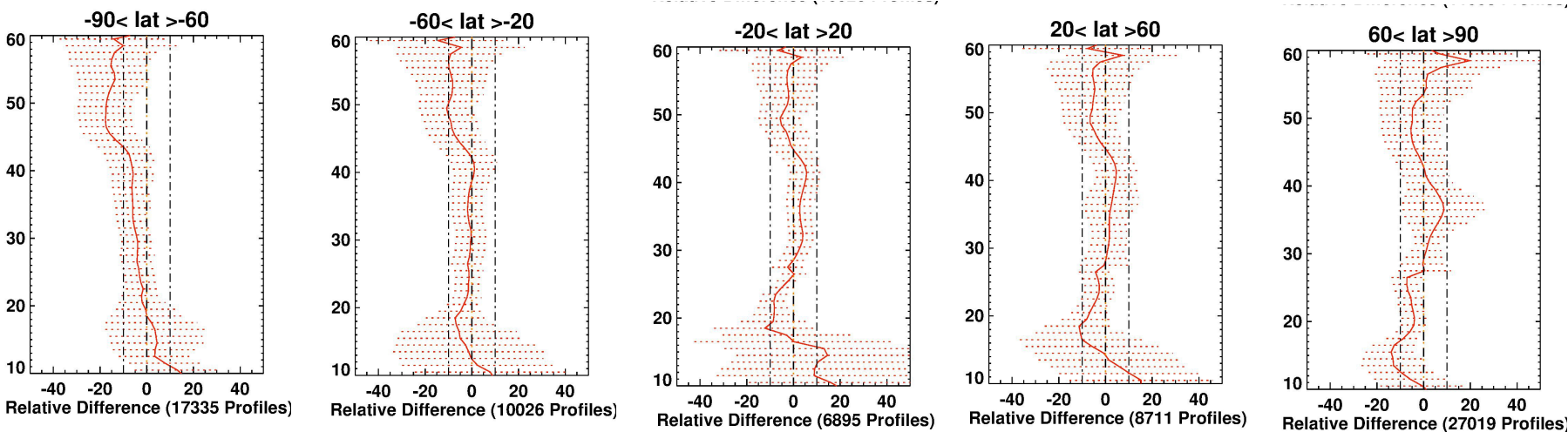


- No PMC/PSC filters used
- Negative bias SH/NH >45km
- UV-visible cut off in NH/tropics
- Positive bias in the tropics and NH ~38-40km, tropics 42km
- Effect of Nabro (Eritrea) volcanic eruption (June 2011): larger bias in 2012 than 2014

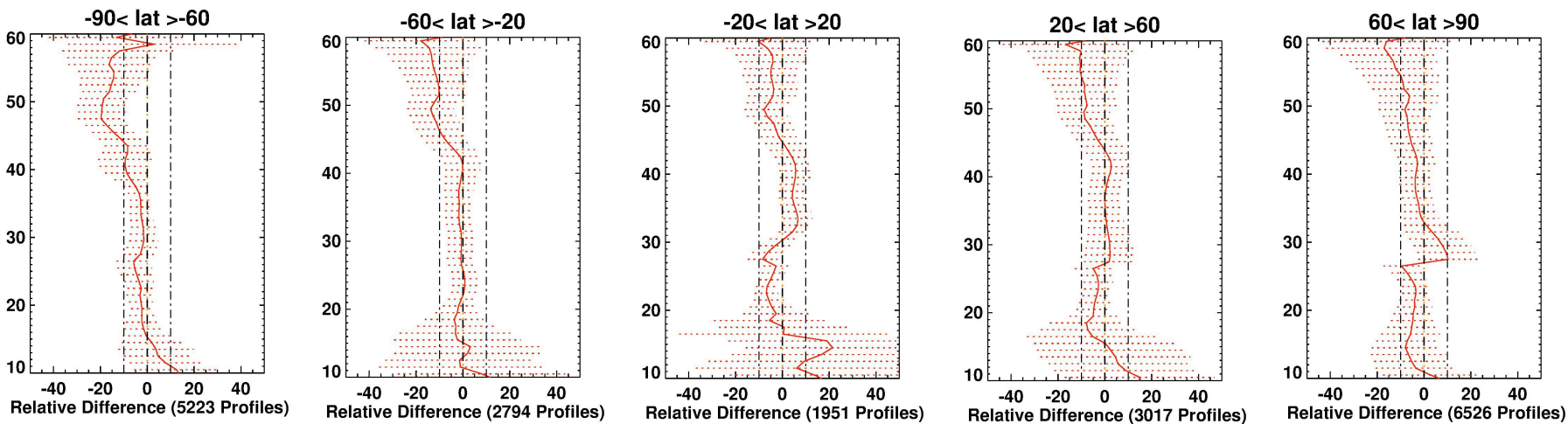
2012



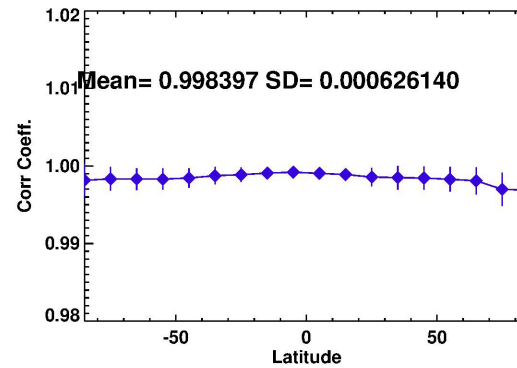
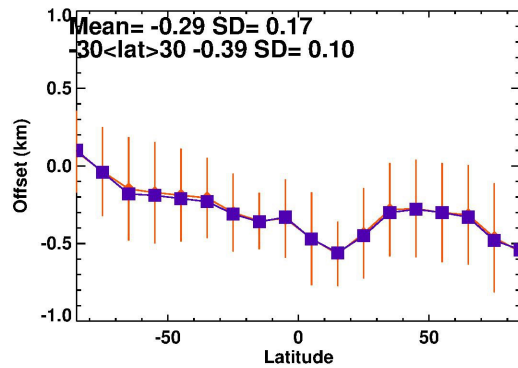
2013



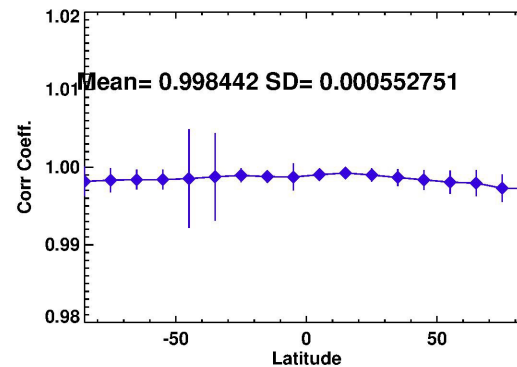
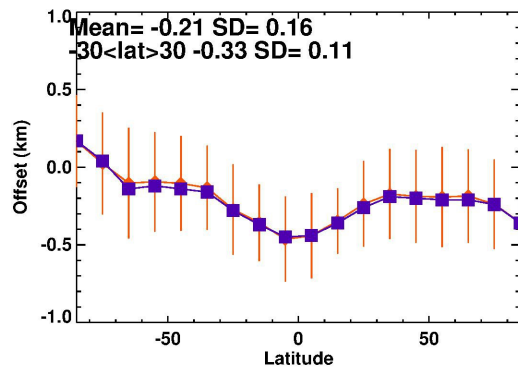
2014



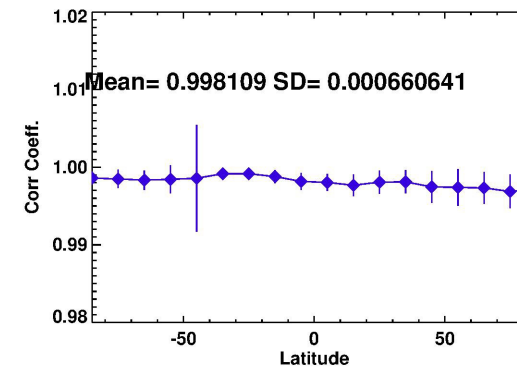
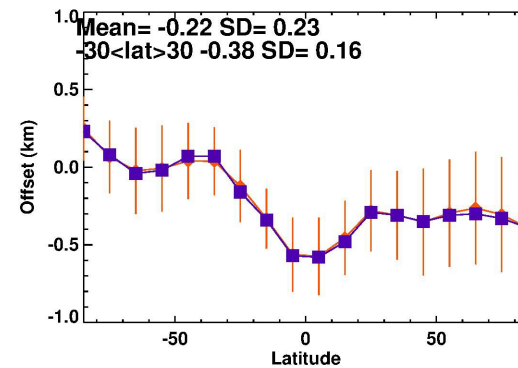
Tangent Height offset



2012



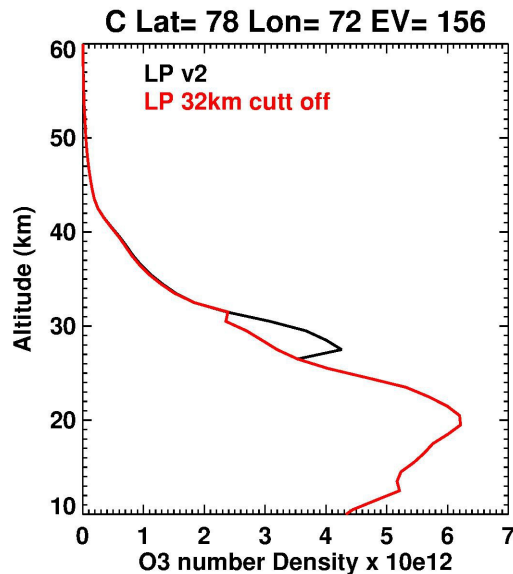
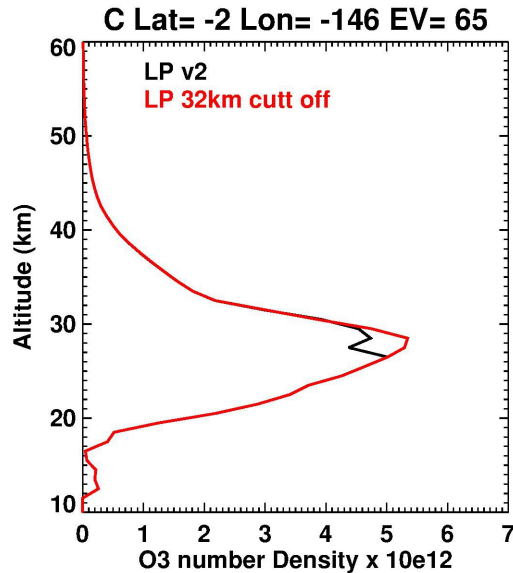
2013



2014

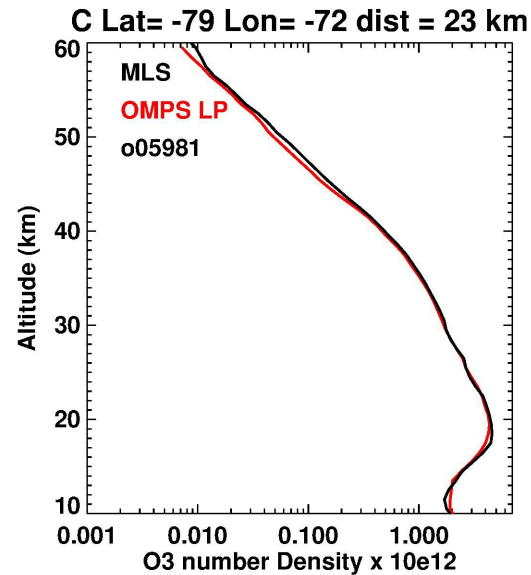
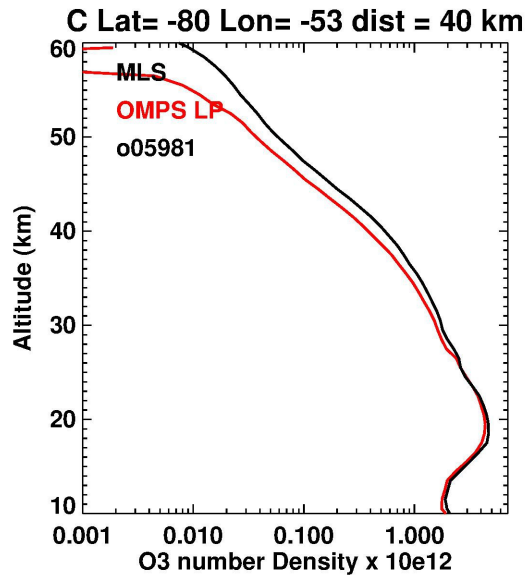
- Average of -200-300m
- Tropics:-300-300 m
- Possible effect of aerosol bias, 100-200m?

UV/Vis merging altitude

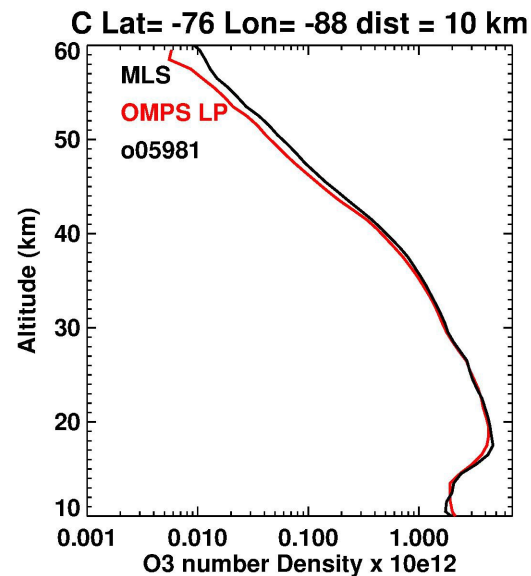
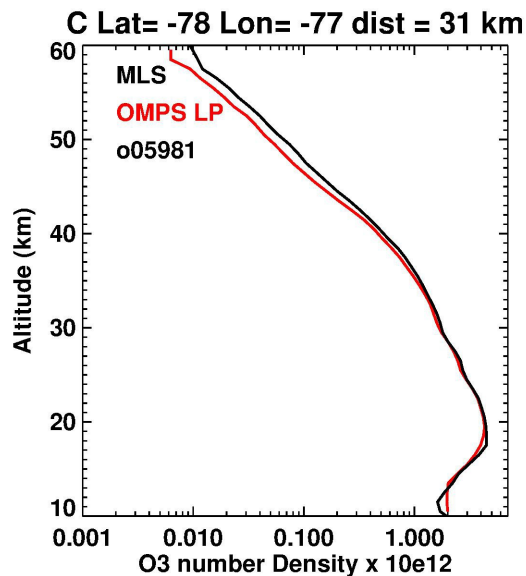


- Version 2, 27km cut off
- NH show unrealistic high ozone below 32km
- Some features around the peak in the tropics
- Test using 32 km
- Can improve the combine profile in the tropics and NH
- Require further testing

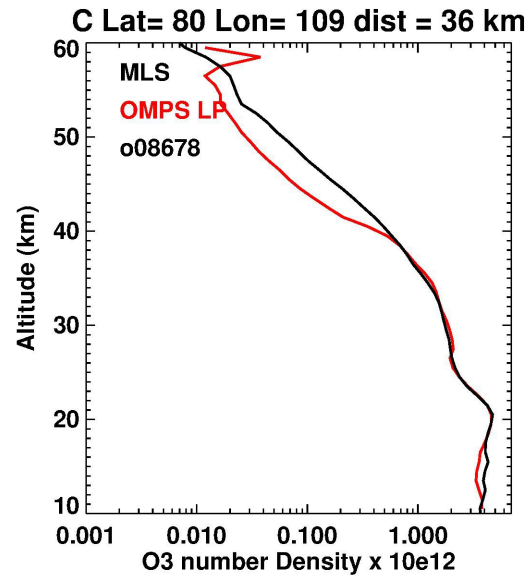
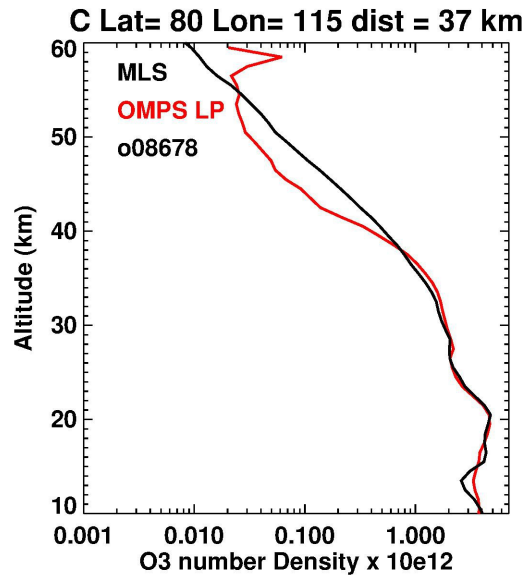
PMCs effect (SH) Dec 22, 2012



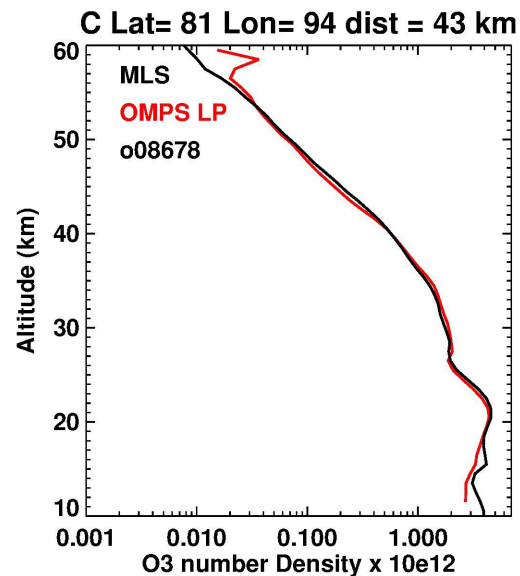
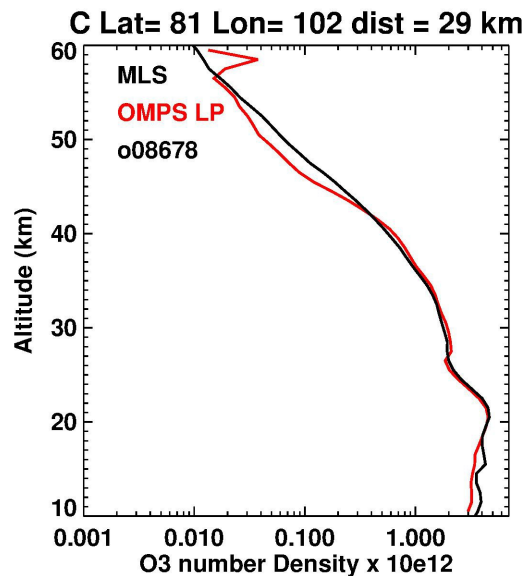
In general, presence of PMC can cause negative bias



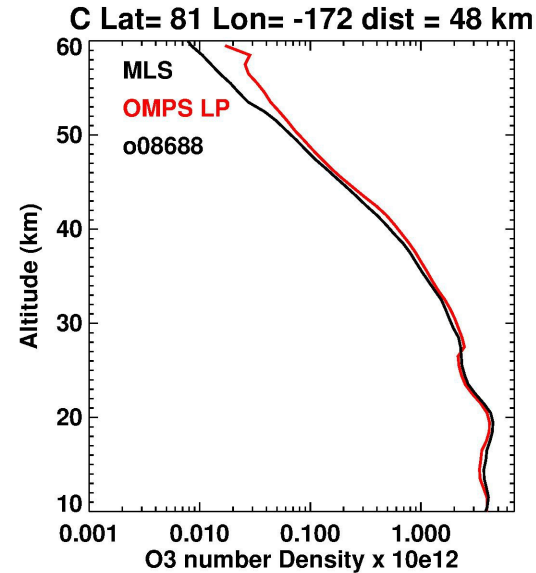
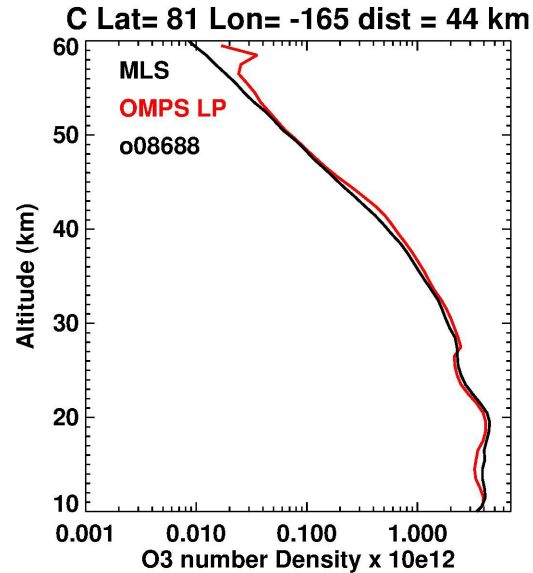
PMCs effect (NH) Jul 1, 2013



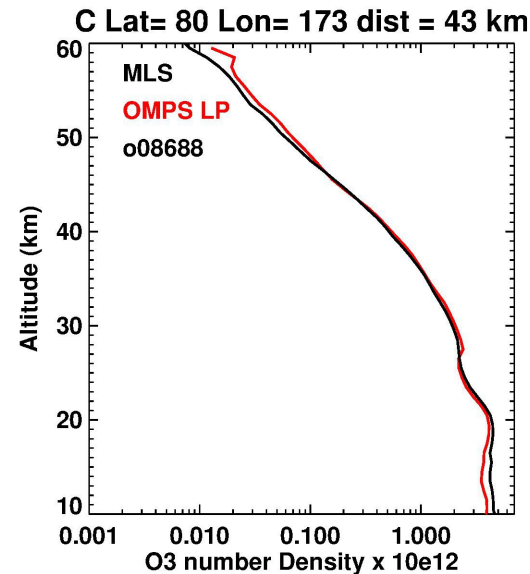
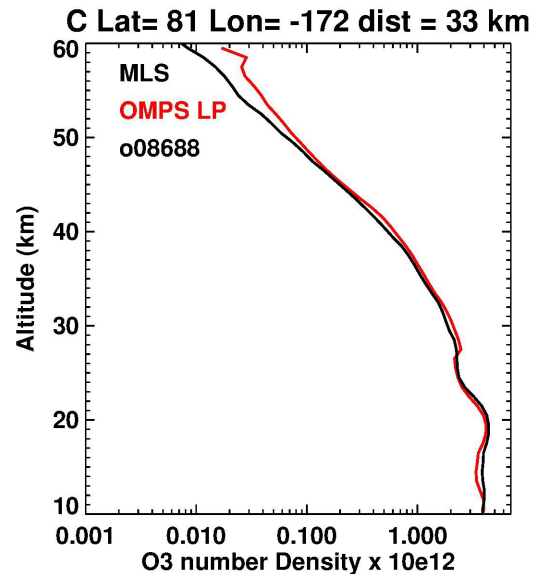
PMCs are brighter
in the NH, forward
scattering?



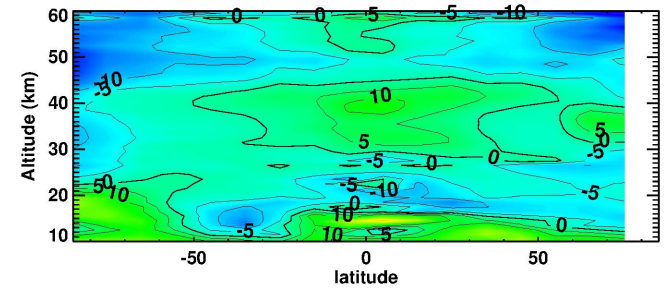
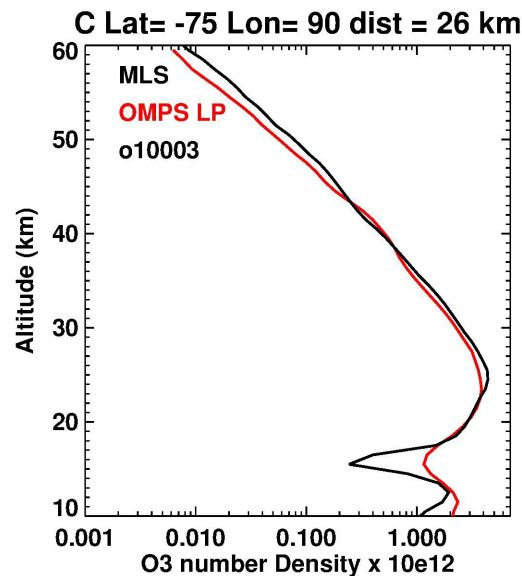
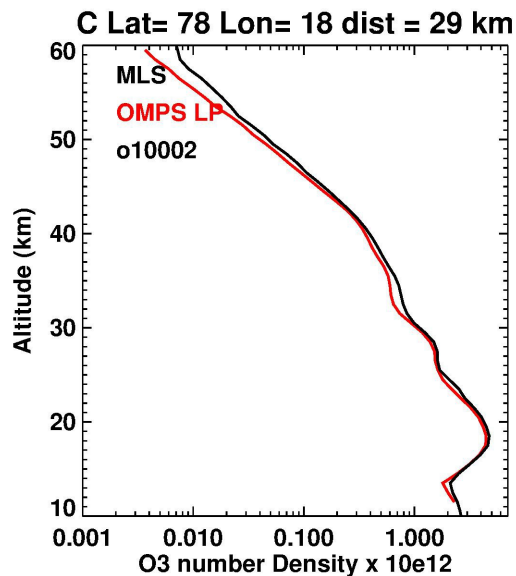
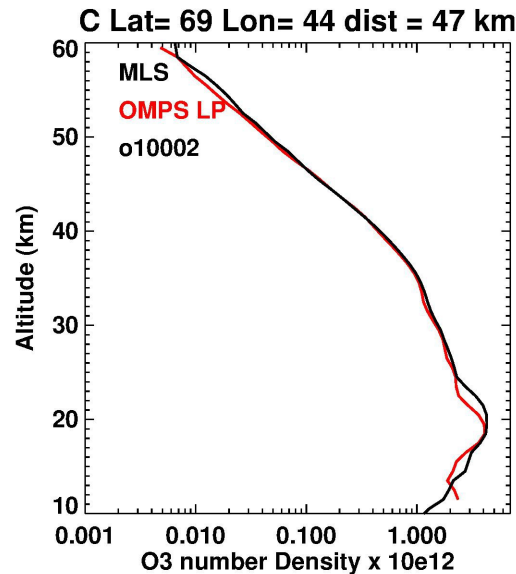
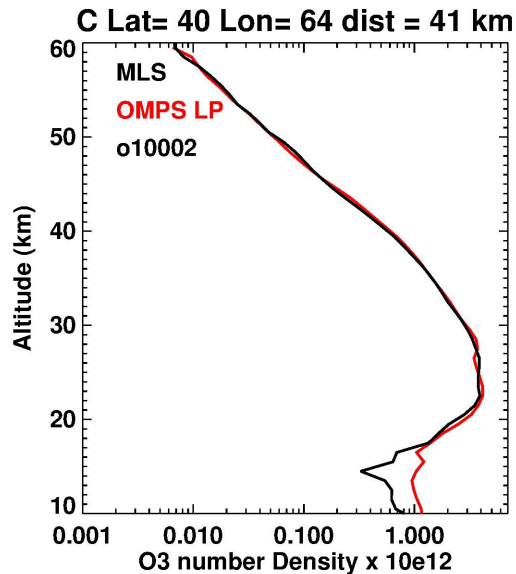
PMCs effect Jul 1, 2013



Can also result in positive bias



SH/NH bias Oct 1, 2013



- October is outside NH/SH PMC season
- Show negative bias with MLS in NH/SH >45km
- OMPS or MLS? Diurnal cycle?